Long Island Road Show Q&A
October 2, 2003

Microturbines

Q: What is the noise level of a microturbine?
A: About the equivalent to a loud fan.

Q: Is this an application that would be installed inside or outside? Would the noise be a problem?
A: Since the microturbine would usually be installed outdoors, noise would probably not be a problem. However, barrier walls can be constructed if the noise is a problem to neighbors.

Q: What is the price per kWh?
A: That depends on the price of gas but is usually from 6 to 9 cents. For landfill gas, it is 7 to 8 cents. The microturbine itself is around $2000 per kWh.

Q: What is the life expectancy?
A: Ten years or 80,000 hours.

Q: In reference to the EPA landfill in California, why is it inactive?
A: The system is active. Only the landfill is 'inactive'—no more can be added.

Q: Are there service contracts available? How often are the units inspected?
A: Units are inspected quarterly because the technology is new. General maintenance (such as changing filters, etc) is done annually. Current service contracts are for five year terms.

Q: How many of your units are currently in service?
A: There are about 2,000 of the 70 kW units on the market. ??? didn't hear answer

Q: What kind of availability guarantee do you offer?
A: We do not offer one yet, but availability is around 98%.

Q: In landfill application, what is the H_2S emission?
A: One hundred parts per million or less. If the rate is higher additional filters or fuel conditioners are used.

Q: After a period of 10 years, will the system require a major overhaul? What would the cost be?
A: This is not yet known. Currently, we offer a five year maintenance contract.

Photovoltaics

Q: How many square feet of solar panels are needed to power the 50 hp farm (shown in the presentation)?
A: One square foot produces 10 watts.

Q: With regard to cost, would you have to feed more back into the grid than you use to balance cost because credits given are less than retail costs?
A: Not in all cases, but in most, yes. This is balanced somewhat because prices would be higher during peak demand when power would be fed back into the grid, thus the credit would be higher.

Q: How much does such a solar project cost per kWh?
A: Just less than 8 cents per kWh including all rebates. Without rebates, the cost could be as high as 20 cents per kWh.

Wind Turbines:

Q: Was your company commissioned to do the feasibility project off-shore Long Island?
A: Yes, AWS Scientific.

Q: What is the size difference in the large v small turbine?
A: Large – MW turbine; Small—kW turbine.

Q: What is the cost of an average tower?
A: Fifteen thousand dollars for a 100 foot, self supporting, lattice tower.

Q: What is the total installed cost?
A: Around $45,000 – not including permitting costs.

Q: What reliability issues arise?
A: Specific problems include tips breaking, fluid dynamic issues, transfer of electric power to tip breaks.

Q: What is the maintenance schedule?
A: Twice annually, with one comprehensive overhaul/inspection.

Q: Is there interference with video signals?
A: Almost never, but if this did occur, we could make accommodations for effected customers.

Q: What about vertical axis turbines?
A: We don't use any. Very 'tied to the ground' and rotor efficiency is lower.

Q: Of the $4000 kWh cost, how much of that is installation?
A: Almost the entire cost.

Q: So, one third to one fourth of the cost of the tower is citing and labor?
A: Yes.

Q: Can the government play a role in making land available?
A: Yes, this generally helps the process move along much more quickly.

Q: What happens when you have extremely high winds?
A: Turbines are designed to withstand winds up to 120 mph. Different models function differently to prevent malfunctioning.

Q: Do the units have variable pitch blades?
A: The larger units do.

Q: How many hours per year does a wind farm operate?
A: About 7000 hours or 90% of the time; output varies on wind speed.

Fuel Cells

Q: What is the life of a stack?
A: Approximately 1000 hours.

Q: What is the largest unit you have used?
A: Around Long Island, 2.5 kW; elsewhere as high as 250 kW.

Hydrogen

Q: Has hydrogen run into many of the same problems that ethanol previously did?
A: Yes, an effort had to be made on the national level to have ethanol classified as a fuel instead of a hazmat.

Q: What is HV-1, HV-2, etc?
A: Hydrogen Vehicle 1, hydrogen vehicle 2. The number refers to the generation.

Q: New York has been active in the C&G development. How does that affect the hydrogen economy?
A: It doesn't. You can not use existing natural gas infrastructure to move hydrogen.

Q: Are there solid state hydrogen storage systems?
A: Yes, such as metal hydride storage.

Statement: Another process that has been used to separate hydrogen is water electrolysis. However, some have had experience with this producing too much chlorine gas as a byproduct.

Q: Can we scan and use the presentations given out here today?

A: Yes, but only those prepared by DOE.

Q: Can this workshop be prepared for a broader audience?
A: Yes, or more specific.

Final Discussion

- Black out: During the August 2003 blackout that shut down electric systems in much of the Northeastern US, many distributed energy resources, such as PV systems, failed to work because of anti-islanding.
- Storage: Participants described storage as a "critical element" and requested that information on electricity storage be presented in a follow up meeting to be held in Long Island in the near future.
- Permitting has been among the greatest barriers to installation of distributed energy. Participants agreed that road shows like this will help. They requested that DOE hold a follow up meeting with just building code and fire safety officials.
- Other technologies such as harnessing wave energy were discussed briefly.